ITEM 660.14XX M HYDRANT ASSEMBLIES

DESCRIPTION

Work shall consist of installation of new hydrants and fittings; or adjusting existing hydrants to conform to new elevations; or removing or relocating existing hydrants and hydrant appurtenances. Work shall be as shown on the plans and as directed by Resident Engineer.

REFERENCES

ANSI/AWWA C110 - Ductile-Iron and Gray-Iron Fittings, 75mm through 1220mm, for Water and Other Liquids.

ANSI/AWWA C111 - Rubber-Gasket Joints for Ductile-Iron and Gray-Iron Pressure Pipe and Fittings.

ANSI/AWWA C502 - Dry-Barrel Fire Hydrants.

ANSI/AWWA C512 - Air Release, Air Vacuum and Combination Air Valves for Waterworks Service.

ASTM A536 - Standard Specification for Ductile-Iron Castings.

MATERIALS

GENERAL

For existing hydrant adjustments, replacement parts shall be made by the original manufacturer of the fire hydrant or an approved equal.

HYDRANTS

Standard: AMSI/AWWA C502 - Dry Barrel fire hydrants.

MATERIALS

133 millimeter valve opening.

1.7 meter bury for a standard hydrant and 2 meter bury for a blow-off hydrant.

Counterclockwise direction of opening.

OSHA safety yellow paint conforming to Federal lead standards.

Pentagon-shaped operating nuts, 38 millimeter point to flat with weather cap or shield.

"O" Ring packing.

Bronze to bronze seat rings.

152 millimeter, mechanical joint inlet with connecting gland, mechanical joint gasket and Core-Ten or Usalloy "T" head bolts.

NOZZLES

1. 114 millimeter inside diameter with 146 millimeter outside diameter, male, 4 threads per 25mm.

2. 64 millimeter inside diameter with 78 millimeter outside diameter, male, 7 ½ threads per 25mm.

Mechanically attached nozzles with National Standard Thread.

Threaded female caps without chains.

Orientation: Two smaller nozzles 180 degrees apart with large nozzle located equidistant between them.

MANUFACTURERS

Kennedy Guardian: Product #K-81-A.
Mueller Centurion
Clow Eddy: Product #F-2640.
U. S. Pipe Metropolitan: Product #250 - Model 94.

ANCHOR PIPE AND MECHANICAL JOINT FITTINGS

MANUFACTURERS

American Pipe Product: A-10895.
U. S. Pipe Product: U-591.
Clow Product: Anchoring Pipe, MJ Anchoring Coupling.
Union Foundry Company Product: 20-4660

APPROVED SUBSTITUTES (MECHANICAL JOINT RESTRAINT)

MATERIALS

MJ rubber gasket per ANSI/AWWA C111.

Restraint (gripper) mechanism shall be hardened stainless steel gripping teeth welded to gripper gland or ductile iron gripping wedges heat-treated to a minimum hardness of 370 BHN with twist-off activation nuts.

Glands shall be made of ductile iron.

2413 kPa operating pressure.

Utilize standard T-bolt for MJ assembly (not restraint).

Capable of being disassembled.

Glands that closely resemble standard MJ glands shall be painted yellow.
Approved for use as a temporary restraint system only on ductile iron pipe, 102 mm through 305 mm, inclusive.

Use of mechanical joint restraints in place of permanent concrete thrust blocks is not allowed.

MANUFACTURERS

EBAA Iron Sales, Inc. Product: MEGALUG.
Ford Meter Box Company Product: Uni-Flange, Series 1400

ANCHORING TEES (MECHANICAL JOINT)

Standard: ANSI/AWWA C110 - Ductile-Iron and Gray-Iron Fillings, 76 millimeter through 1.2 meter, for Water and Other Liquids.

MANUFACTURERS

Clow
Tyler
Griffin
U.S. Pipe

ANCHORING ELBOWS (MECHANICAL JOINT)

MANUFACTURERS

Clow
Approved Equal

GUARD VALVE

MATERIAL

152 millimeter gate valve, in accordance with MCDOT Item Specification 660.07XXM

Polyethylene Encasement

MATERIALS

Polyethylene tube: ANSI/AWWA C105.

Thickness: 8 mils.

Pigmentation: natural when exposure to ultraviolet light such as sun will be less than 48 hours. Pigmentation shall be 2.0 to 2.5% well-dispersed carbon black with stabilizers when exposure to ultraviolet light will be 2 to 10 days.

Polyethylene: virgin polyethylene produced from Dupont Alathon or USI Petrothene resins.

Method of manufacture: extruded tube form.

Closure Tape: Polyhen #900 or Scotchrap #50, 51 mm wide, plastic backed, adhesive tape.

Flat tube widths:

Nominal Pipe Sizes	Push-on Joint Flat Tube Width	Mechanical Flat Tube Width
152 mm	406 mm	508 mm
203 mm	508 mm	610 mm
254 mm	610 mm	686 mm
305 mm	686 mm	762 mm
356 mm	762 mm	864 mm
406 mm	864 mm	940 mm
457 mm	940 mm	1041 mm
508 mm	1041 mm	1143 mm
610 mm	1372 mm	1346 mm

CONSTRUCTION DETAILS

NEW HYDRANTS

Final field location of the proposed hydrant as shown on plans. Hydrants shall be installed no less than 1 meter from face of curb and no less than 457 mm from edge of sidewalk to hydrant nozzle.

Install only anchor pipe and mechanical joint fittings from hydrant tee to hydrant in order to provide a mechanically restrained hydrant branch.

Maintain 457 millimeters minimum separation between guard valve and hydrant.

Install hydrant vertical and plumb with casting ring or mark (located just below breakaway flange on hydrant barrel) at grade. When there is no casting ring or mark, install hydrant

with breakaway flange no less than 50 mm and no more than 152 mm above grade. Contractor is responsible for hydrant alignment until project completion. The maximum allowable hydrant extension to be added to achieve the above is 457 mm.

Install a 203 mm x 406 mm x 203 mm solid concrete building block and, as necessary, smaller solid concrete blocks between hydrant base and undisturbed soil at trench bottom.

Install #1 crushed stone at bottom of excavation along entire width and length of trench and to base of guard valve box as shown on the Plans.

Remove all nozzle cap chains.

When installation and clean up are complete, remove all loose scale and foreign matter on hydrant and paint with one coat of paint. Paint shall be supplied by MCWA.

Plug hydrant weep holes when ground water is encountered within 2 meters of finished grade.

ADJUST EXISTING HYDRANT

Adjust fire hydrant to new grade using an approved fire hydrant extension kit (maximum extension allowable is 457 mm), or using a mechanical joint offset or mechanical joint bends with retainer glands and thrust blocks. Extension to be installed per manufacturer's instructions and by a qualified individual. Hydrant must be fully operational upon completion of adjustment.

Existing fire hydrants that are damaged, broken or shifted from true alignment by Contractor's operations, must be repaired, replaced or re-aligned by the Contractor at no cost to the Monroe County Department of Transportation or Monroe County water Authority.

REMOVE EXISTING HYDRANT

All work shall be coordinated with Monroe County Water Authority (MCWA). MCWA shall operate all valves and appurtenances required for the work.

Immediately notify MCWA when existing fire hydrants are put out of service. Red tag out-of-service hydrants.

Remove hydrants only after water main they are connected to has been abandoned.

Expose the water main and remove hydrant from the branch pipe. Remove existing hydrant, entire branch valve box, and hydrant marking post and disposed of properly. Remove hydrant at its base. Do not break hydrant to remove it. Valve to remain in the closed position.

All removed hydrants shall remain the property of MCWA, and shall be delivered to the MCWA's Warehouse at 475 Norris Drive, Rochester, New York 14610.

RELOCATE EXISTING HYDRANT

The existing hydrant shall be removed and reinstalled in a new location. Installation of the hydrant shall conform to the same installation requirements as for a new hydrant. On all hydrants to be relocated, the operating stem, main valve, valve seat, drain and drainage passages shall be cleaned and inspected. Hydrants shall be checked for proper operation after reassembly and prior to installation. The Resident Engineer shall be advised of any hydrants that may be unsuitable for relocation. The Resident Engineer will determine whether the existing hydrant should be replaced with a new hydrant.

METHOD OF MEASUREMENT

NEW HYDRANTS

Quantity measured under this item shall be the number of new hydrants actually installed.

ADJUST EXISTING HYDRANTS

Payment will be made for each fire hydrant adjusted as directed by the Resident Engineer. No payment will be made under this item for any fire hydrant adjusted under another item.

No payment will be made until the Resident Engineer and Monroe County Water Authority's project representative verify that the fire hydrant has been adjusted correctly and is fully operational.

REMOVE EXISTING HYDRANT

Quantity to be measured for payment shall be the number of hydrants removed.

RELOCATE EXISTING HYDRANT

Quantity to be measured for payment shall be the number of hydrants relocated.

BASIS OF PAYMENT

NEW HYDRANTS

Unit price bid shall include cost of furnishing an installing all hydrants, guard valves; polyethylene encasement; pipe fittings; anchor pipe; pipe specials; hardware; stone; warning tape; concrete thrust blocks; joint materials; making pipe joints; restrained joints; testing the hydrant for leakage, chlorinating and flushing as necessary, additional excavation and backfill required for purpose of testing and disinfecting, removing nozzle cap chains, painting hydrant, and furnishing all labor, material and equipment necessary to complete the work. Cost of temporary sheeting and trench protection shall be included

in unit price bid for the hydrant installation.

ADJUST EXISTING HYDRANT

Unit price bid shall include the cost of furnishing all labor, equipment and material including extension kits, excavation and backfill necessary to complete the work.

REMOVE EXISTING HYDRANT

Unit price bid shall include the cost of: excavation, dewatering, disconnection and delivery of the hydrant to Monroe County Water Authority, and backfill, and furnishing all labor, material and equipment necessary to complete the work in acceptance with the specification and as indicated on the plans.

RELOCATE EXISTING HYDRANT

The unit price bid shall include the cost of removing, cleaning, inspecting, reinstalling, and painting the hydrant; furnishing and installing mechanical joint offsets; concrete thrust blocks; crushed stone drain; pressure testing; connecting branch pipe to the hydrant; and connecting new branch pipe to the existing branch pipe.

Payment will be made under:

Item No.	Item	Pay Unit
660.1401 M	New Hydrant Assembly	EA
660.1402 M	Remove Existing Hydrant	EA
660.1403 M	Adjust Existing Hydrant	EA
660.1404 M	Relocate Existing Hydrant	EA